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FACTORS INFLUENCING STUDENT NAVAL FLIGHT
OFFICER PIPELINE PREFERENCE

T. Nontasak, L. S. Goodman, A. Thomas, and G. D. Gibb



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July 1986

NAVAL AEROSPACE MEDICAL RESEARCH LABORATORY
PENSACOLA, FLORIDA

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Naval Medical Research and Development Command
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SUMMARY PAGE

THE PROBLEM

This report identifies those factors that relate to training and assignment preferences of student naval flight officers (SNFOs). A survey questionnaire was developed and administered to 575 SNFOs at different stages of training. Survey items included military and demographic characteristics; reasons for entering the NFO program; pipeline, mission, and aircraft preferences; and related career satisfaction.

FINDINGS

Findings included:

- (1) Students entered the naval flight officer (NFO) program for five general reasons: social and economic benefits, orientation toward naval career, desire to fly, self-development, and military expediency.
- (2) Initial pipeline preference was dependent on commissioning source.
- (3) The most important factors contributing to pipeline, mission, and aircraft preferences were previous contact with the naval aviation community, Fleet Awareness Brief, Mini-fleet Presentation, VT-10 NFO instructors, and other military instructors.
- (4) Marital status was related significantly to overall pipeline preference and squadron choice, but was independent of location desired for first fleet tour.
- (5) No significant dependency existed between commissioning source and interest in the NASA astronaut program.
- (6) Pipeline satisfaction was reported among those students with preference-assignment congruency. The students with incongruent preference-assignment were distributed equally between the dissatisfied and satisfied, and dissatisfaction was reported to decrease over time while satisfaction increased.
- (7) In general, students accepted the importance of the needs of the Navy over the desires of the individual.

RECOMMENDATIONS

1. We recommend that the Navy continue to consider the student's preferences for pipeline, mission, and aircraft assignments. Preference-assignment congruency increases student satisfaction, which may in turn increase motivation to perform.
2. To assist the Navy in recruiting career-motivated personnel, the relationship between retention and pipeline preference-assignment congruency should be examined. Special attention should be given to what motivates those NFOs with unmatched preference-assignment to continue.

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INTRODUCTION

This report identifies those factors that relate to a student naval flight officer's (SNFO) preference for training and assignment. The role of naval flight officers (NFOs) varies with aircraft assignment. Consequently, specialized training programs have evolved to meet training requirements of each assignment category or pipeline. Currently, SNFOs are assigned to either jet or prop pipelines after completing basic NFO training (about 10 weeks). Following graduation and an additional eight weeks of intermediate level training, students are then assigned to one of three advanced jet pipelines--overwater jet navigation (OJN), radar intercept (RI), or tactical navigation (TN). Students assigned to the prop pipeline are then assigned to either the airborne tactical data system (ATDS) or navigation (NAV) pipelines.

In decreasing order of priority, the pipeline assignments are based on the needs of the Navy, student quality point spread, and student preference. Although student preference is the lowest priority, it is nevertheless an important consideration to optimize job performance. The major goal of any assignment or selection system is to maximize the expected utility of the individual to the organization. This is partially accomplished by matching preferences and assignments and thereby minimizing dissatisfaction, maximizing performance and improving retention. While this approach assures optimum use of resources, specific drawbacks emerge in practice. For example, SNFOs are assigned by class with 30 to 40 students per class. For any given class at a given time some pipelines may need a large number of students, while others may require only a few. For future classes, other pipeline input requirements may differ. However, analysis of historical data reveals consistent patterns in SNFO preferences for specific aviation communities (1). A previous study (5) has shown that NFOs are dissatisfied with pipeline assignment. In fact, dissatisfaction is the third most influential reason for attrition from the NFO training program (3). Regarding NFO instructors, another study indicates that a sizable percentage (47%) of instructors are displeased with their instructor assignment (4). Considering NFO instructor dissatisfaction, a negative attitude could possibly affect SNFOs directly or indirectly and thereby adversely impact training effectiveness.

Cognizant of the importance of matching student preference with subsequent assignment, Commander, Training Air Wing SIX, initiated this research to further understand how pipeline preferences are formed (1). The premise was that matching pipeline assignment with SNFO preference would increase motivation, improve subsequent performance, and increase retention rates, as reported elsewhere (2,6).

METHODS

Instrument. In order to delineate factors influencing pipeline preferences, we developed and administered a survey questionnaire to SNFOs at five stages of training. Five versions of the questionnaire were used: questionnaires one, two, and three were oriented to the beginning, pre-basic graduation, and pre-intermediate graduation students, respectively. The fourth version was developed for advanced SNFOs, and the fifth version was designed for NFO instructors. The fifth version was utilized to ascertain

the relationship between pipeline assignment and job satisfaction, and the perceived influence of instructors on student pipeline preferences. Although the 5 versions varied in content and length, each was based on 18 questions concerning SNFO pipeline preference submitted by Training Air Wing SIX to the Naval Aerospace Medical Research Laboratory (see Appendix A).

The questionnaire was constructed, screened, pre-tested, and revised iteratively. It was composed of 2 sections containing over 300 items. The first section pertained to demographic and military background. The second section specifically assessed the strength of factors that might influence an individual to enter the NFO program. Included in the second section were questions on pipeline, mission, and aircraft preferences and the possible reasons for those preferences. Additional questions concerned pipeline satisfaction and the effects of pipeline assignment on future career decisions.

The questionnaires utilized a variety of item formats including close-ended questions with both ordered and unordered response choices, partially closed-ended questions, and open-ended questions. Matrix and contingency questions (7) were used to minimize questionnaire administration and organization times. The questionnaire incorporated various scales including the Likert and semantic differential formats (7).

Procedure. Data were collected between August 1984 and September 1985. Five hundred and seventy-five questionnaires were administered on a class available basis to SNFOs undergoing training at Training Squadron TEN and Training Squadron EIGHTY SIX. One hundred fourteen respondents were beginning SNFOs, 216 were pre-basic graduates, 149 were pre-intermediate graduates, and 96 were advanced SNFOs. In addition, 39 NFO instructors responded to the questionnaire.

RESULTS

Military and Demographic Background. Of the 575 SNFOs, 43% ($n = 247$) were commissioned from Aviation Officer Candidate School (AOCS) while 35% ($n = 201$) entered through the Naval Reserve Officer Training Corp (NROTC). Twenty percent graduated from the United States Naval Academy (USNA) ($n = 115$) and 2% were from Officer Candidate School (OCS) and other commissioning sources. The majority were males (99.3%), white (91.6%), ensign rank (95.5%), with bachelor's degrees (97.6%), and a median age of 23, with a mean of 22 weeks in the NFO program.

Slightly over three-fourths (76.1%) of the respondents had not been married, 22.2% were married, and 6.1% had an average of 1.3 children. Twenty-seven percent of those unmarried reportedly were in a relationship they perceived would lead to marriage within 1 year.

Reasons for Entering the NFO Program. A 20-item motivation scale originally developed for NFOs and pilots was used to identify factors that contributed to program participation (5). All respondents were asked to evaluate each item on a 5-point scale according to its influence on their decision to enter the NFO program. For this study, a principal components analysis was performed and rotated to a normalized varimax criterion. From these analyses, the most common factors were identified.

From the matrix of intercorrelations, five factors were extracted, which accounted for 56.88% of the total variance. The rotated matrix of factor loadings is presented in Table 1. This factor loading matrix was rearranged so that the columns appear in decreasing order of variance explained by factors. The rows were rearranged so that, for each successive factor, loadings greater than 0.5 appear first. Loadings less than 0.25 were replaced by blanks.

Table 1
Sorted Rotated Factor Loadings (Pattern)

Item	Factor I	Factor II	Factor III	Factor IV	Factor V
Social opportunities	.721				
Prestige	.605				
Opportunity for educational benefits	.579			.271	
Pay, allowances and fringe benefits	.569	.285			.295
Opportunity to develop self-confidence	.553			.343	
Plan to make the Navy a career		.786			
Wanted to be a Naval officer		.768			
Interested in what the Navy does		.749			
Wanted to serve country		.547		.398	.337
Adventure			.763		
Excitement			.754		
Wanted to fly			.705		
Physical training and development	.404			.597	
Not physically qualified for pilot			.416	-.536	.312
Opportunity to develop self-discipline	.434			.522	.319
Wanted to do something challenging		.292	.499	.504	
Fulfill military obligation					.767
Opportunity to think about what I really wanted to do in life	.360				.557
Security of a military life	.427	.469			.450
Career opportunity better than civilian life	.495	.487			
Eigenvalues	2.907	2.837	2.340	1.685	1.606
Total Variance	14.535	14.185	11.700	8.425	8.030

Factor I was generally identified as Social and Economic Benefits. Those items loading high on this factor reflect external rewards as a result of entering the program. These include social, educational, prestige, pay and fringe benefits. Career opportunity and job security load moderately on this factor. Items concerning development of self-discipline, confidence, physical training, and opportunities to think about what they really wanted to do in life also load positively on this factor, although the magnitudes are relatively lower. An individual scoring high on Factor I generally entered the program as a consequence of its many extrinsic rewards and opportunities.

Factor II was defined as Orientation Toward Naval Career. Those items loading significantly on this factor concerned a desire and commitment toward the pursuit of a career as a naval officer. Emphasis was placed on intrinsic interest in a naval career rather than the extrinsic benefits and opportunities suggested in Factor I. Military way of life and the pursuit of a naval career were of central concern for an individual scoring high on this factor.

Factor III emphasized the Desire to Fly. Items loading significantly on this factor included adventure, excitement, and 'wanted to fly'. The desire to do something challenging also loaded positively on this factor. Individuals scoring high on this factor were more likely to possess the 'romantically adventurous' identification with aviation.

Factor IV was defined as Self-Development. Those items loading highest on this factor reflect physical training and development, opportunity to develop self discipline, and desire to do something challenging. The item 'not physically qualified for pilot' loaded negatively. Individuals scoring high on this factor were highly concerned about their own physical and personal development. The NFO program was viewed as a challenge whereby one could develop physically and mentally to serve the country.

Factor V may be loosely identified as Military Expediency. Those items loading highest on this factor reflected a general sense of fulfilling one's interest and opportunity provided by the military. Military fulfillment replete with opportunity to think about what one really wanted to do in life, and security of a military life, loaded significantly on this factor.

We note that the 20-item motivation scale utilized to derive the aforementioned factors was originally developed for a combined study of NFOs and pilots (5). An NFO-specific motivation scale might not have produced quite the same dimensions of reasons of why one entered the NFO program.

On the influence scale, which ranged from 1 to 5 where 5 represents "very influential," an individual item comparison indicated that the item with the highest mean score was 'wanted to fly' ($M = 4.48$, $SD = .76$) followed by; 'adventure' ($M = 4.12$, $SD = .87$); and 'wanted to do something challenging' ($M = 4.10$, $SD = .87$). 'Excitement', 'wanted to serve country', and 'not physically qualified (NPQ) for pilot', ranked fourth, fifth, and sixth with mean scores of 3.99 ($SD = .88$), 3.74 ($SD = .95$), and 3.44 ($SD = 1.72$), respectively.

Initial Pipeline Preference. Pipeline practices that were in effect during this study assigned a student to either jets (OJN, TN, RIO) or props (ATDS, NAV) upon basic graduation. Based on their initial preferences at the time the survey was administered, 63.8% ($n = 359$) of the SFNOs preferred jets while 36.2% ($n = 204$) preferred prop pipelines.

Unstructured responses indicating reasons for these preferences were content-analyzed, and categories were derived using the phraseology of the respondents as much as possible. Summary statistics of expressed reasons were then calculated under these categories. All responses usually indicated multiple reasons for preferring certain pipeline, mission, and aircraft. In each case, we attempted to evaluate the responses to distinguish primary from secondary reasons. Many SFNOs specified their primary reasons and listed other variables as contributing factors. In other cases, we used our best judgment to differentiate between primary and secondary reasons.

Jet Preference. Primary reasons for jet pipeline preference may be generally broken down into three categories: 1) aircraft and mission involved, 2) psychosocial, and 3) career-related. Aircraft and mission involvement included aircraft performance, maneuverability, speed, equipment, weaponry, physical appearance, and desirability of associated missions (OJN, TN, or RIO). Psychosocial reasons include such concepts as excitement, challenge, tail hooking (arrested landings), prestige, romance, desirability of working in small groups, and favorable characteristics of personnel in the aviation community. The career-related category enumerates career-enhancement opportunities, desirable geographic locations, travel, personal experiences, desire to be at sea, preparation for entering the National Aeronautical and Space Administration (NASA) program, and outside civilian job opportunities.

Secondary reasons included residing near a jet base, having relatives who flew jets, probability of not obtaining NAV if opted for prop, dislike of ATDS, and physical comfort of jets. Descriptive statistics for jet preferences are presented in Table 2.

Table 2

Frequencies (F) and Percentages of Expressed Reasons for Jet Preferences

Reason	F	Percent
Aircraft and mission	259	70.0
Psychosocial	196	52.2
Career-related and others	84	22.7

Prop Preference. Justifications for preferring prop pipelines may be classified into three general categories. The first category relates to aircraft and mission quality (e.g., aircraft technology, capability, safety features, warfare specialties). The second category is psychosocial (e.g., team concept, personality 'match' with aircraft and mission, safety, family

stability, land-based, desire not to kill, stable and relaxed environment, and appreciation of specific aviation community). The third category includes career-related and 'other' reasons (e.g., opportunity to lead large air crews, desirable locations, favorable deployments, travel, job satisfaction, personal background, physical limitations disqualified them from flying jets, and dislike of jets and carrier life). Descriptive statistics for prop preferences are given in Table 3.

Table 3

Frequencies (F) and Percentages of Expressed Reasons for Prop Preferences

Reason	F	Percent
Aircraft and mission	150	70.1
Psychosocial	139	64.6
Career-related and others	27	12.6

Relationship between marital status and pipeline preferences. Using a Chi-square statistical technique, marital status was significantly related to the overall jet-prop pipeline preference (Yate's corrected χ^2 , .01 = 6.69). Table 4 illustrates that pipeline preference was dependent on marital status. The SNFOs who had never been married were more likely to choose the jet pipeline. The overall strength of association between the two variables, using Phi coefficient, was 0.114.

Table 4

Relationship between Marital Status and Pipeline Preference

Marital Status	Pipeline		Total
	Jet	Prop	
Never Married	286 (66.7%)	143 (33.3%)	429 (76.5%)
Married	71 (53.8%)	61 (46.2%)	132 (23.5%)
Total	357 (63.6%)	204 (36.4%)	561*

$$\begin{aligned} \chi^2 & (\text{Yate's corrected}) = 6.69 \\ DF & = 1, p < .01 \\ \text{Phi coefficient} & = 0.114 \end{aligned}$$

*Divorced and separated are excluded from the analysis.

Factors Influencing Aviation Community Preferences

Training Squadron T&M (VT-10) NFO Instructor. The majority (77%) of the SNFOs indicated that VT-10 NFO instructors attempted to exert at least some influence on their preference of pipeline/mission/aircraft. However, two-thirds of all SNFOs studied had already formed their preferences prior to entering basic NFO training at VT-10. These initial desires were made during training at NROTC (24%), USNA (17%), AOCS (16%), and while awaiting aviation training (15%). These preferences were significantly related to the students' commissioning source ($\chi^2_1, .01 = 13.14$, Table 5). Students commissioned from NROTC and USNA appeared to have formulated their aviation community preferences more firmly than those who graduated from AOCS. The strength of association between the two variables using Cramer's V was 0.16.

Table 5

Relationship Between Pre-formed Aviation Community Preferences and Major Commissioning Sources

		Pre-formulation of Aviation Community Preferences		Total
		Yes	No	
Major Commissioning Sources	AOCS	124 (57.4%)	92 (42.6%)	216
	NROTC	83 (76.7%)	26 (23.8%)	109
	USNA	122 (69.7%)	53 (30.3%)	175
Total				500

$$\chi^2 = 13.14$$

$$DF = 2, p < .01$$

$$\text{Cramer's } V = .16$$

After entering the NFO program at VT-10, 20% of those with an existing aviation community preference cited a change in their preference caused by instructor influence. Forty percent of those with no initial preference indicated that their pipeline/mission/aircraft desires were influenced by the instructor. When asked why they felt the instructor influenced them, the following reasons were enumerated; accurate source of information (65.5%), experience (41.1%), emphasis on career and opportunity (33.5%), professionalism (9.5%), and personality match (4.4%). Other reasons included daily contacts, positive comments on a particular community coupled with negative comments on others, and instructor's philosophy and accessibility.

Fleet Awareness Briefs and Mini-Fleet Presentation. The Fleet Awareness Brief and Mini-Fleet Presentation were found to be moderately influential in aviation community preferences. On the Influence scale (where 5 represents very strong influence), the Fleet Awareness Brief

yielded a mean score of 2.76 ($SD = 1.25$) followed by Mini-Fleet Presentation ($M = 2.73$, $SD = 1.23$). Instructors were also found to be an influential factor with a mean of 2.71 ($SD = 1.29$). Table 6 presents influential variables in order of their perceived degree of influence.

Table 6

Leading Factors Influencing Pipeline/Mission/Aircraft Preference

	Overall		Pipeline		Mission		Aircraft	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Previous Contact with Naval Aviation Community	3.50	1.30	3.21	1.31	3.65	1.29	3.64	1.31
Fleet Awareness Brief	2.76	1.25	2.66	1.21	2.81	1.24	2.80	1.29
Mini-fleet Presentation	2.73	1.23	2.60	1.16	2.78	1.25	2.82	1.28
VT-10 Instructor	2.71	1.29	2.63	1.26	2.76	1.31	2.74	1.31
Other Military Instructors	2.68	1.43	2.65	1.40	2.68	1.44	2.71	1.46
Peer	2.01	1.22	2.00	1.19	2.01	1.20	2.05	1.26
Navy Recruiter	1.70	1.14	1.70	1.19	1.69	1.12	1.71	1.17
Father	1.69	1.13	1.69	1.12	1.68	1.12	1.71	1.16
Media	1.62	1.02	1.57	0.98	1.64	1.03	1.65	1.05
Spouse	1.61	1.18	1.62	1.17	1.57	1.14	1.65	1.21
Relative	1.46	0.05	1.45	0.94	1.47	0.94	1.47	0.98

Marriage. In comparison to other factors, a spouse's influence was perceived to relatively less ($M = 1.61$, $SD = 1.18$). Seventy-five percent of all those who responded to this question ($n = 233$) rated the spouse's influence to be none. Married respondents who responded to this question ($n = 106$) indicated the influence had some impact ($M = 2.21$, $SD = 1.42$). Fifty five of the married respondents indicated the spouse had no effect. This factor was ranked sixth, as compared to tenth for the overall group, preceded by previous contact with the naval aviation community, the Fleet Awareness Brief, VT-10 NFO instructor, Mini-Fleet Presentation, and other military instructors.

The primary reason why marriage would exert an influence included able to spend time at home (65.2%), concerns about safety (37.5%), concerns about finance (12.5%), and able to travel together (9.7%). Other reasons given were career concern, children and spouse's satisfaction.

Contacts with the Naval Aviation Community. Prior to beginning training as a student at VT-10, 84.4% ($N = 481$) of the SNFOs reported they had contacts with personnel from the naval aviation community. Among the communities most frequently cited were Anti-submarine Warfare (69.1%), Attack (61.3%), F-14 Fighter (52.5%), Carrier-based Anti-submarine Warfare (35.9%) and F-4 Fighter (35.3%).

When asked which community influenced them most in their aviation community preference, 26% of the students cited Anti-submarine Warfare, while 22.4% indicated Attack and 16.5% indicated F-14 Fighter. These contacts produced a moderate-to-strong influence upon the student's pipeline, mission and aircraft preferences with means of 3.21 (SD = 1.31), 3.65 (SD = 1.29), and 3.64 (SD = 1.31), respectively (Table 6).

The SNFO's were asked to identify the aviation community with which they had first contact after the start of training at VT-10. Three communities were mentioned much more frequently than others: Attack (27.4%), Anti-submarine Warfare (24.6%), and Carrier-based Anti-submarine Warfare (20.5%). These contacts were found to generate only a moderate influence on the students' pipeline, mission, and aircraft preferences with means of 2.39 (SD = 1.25), 2.59 (SD = 1.33), and 2.56 (SD = 1.31), respectively.

Rank Order of Aircraft Preference. When the SNFOs were asked to rate the aircraft on degree of preference, the most preferred aircraft was the F-14 followed by the P-3 and the A-6 (Table 7).

Table 7

Rank Order of Aircraft Preference

All SNFOs Ranking	Aircraft Type	Married SNFOs Ranking
1st	F-14 (fighter)	2nd
2nd	P-3 (anti-submarine warfare)	1st
3rd	A-6 (attack)	3rd
4th	S-3 (carrier based anti-submarine warfare)	4th
5th	E-2 (airborne early warning)	5th
6th	EA-6 (electronic warfare)	6.5
7th	F-4 (fighters)	9th
8th	EP-3 (reconnaissance)	6.5
9th	EC-130 (reconnaissance)	8th
10th	A-3 (reconnaissance)	10th

Rankings by married SNFOs showed a slight difference. The rankings of the F-14 and P-3 were reversed, but the order of the remaining aircraft was generally consistent with the overall group ranking. The product-moment correlation between the married and unmarried SNFO rankings was very strong (Spearman's Rho, r_s , = .93).

Aircraft Carrier versus Shore-based Fleet Squadron. Respondents were asked if they preferred an aircraft carrier or a shore-based fleet squadron. More than half (56.4%) of the SNFOs indicated aircraft carrier preference while the remaining students preferred to be shore-based. The aircraft carrier preference stemmed from reasons such as adventure, travel,

excitement, challenge, preferred aircrafts are carrier based, preferred mission, better career promotion, and enjoyable jet community. Additional responses included enjoy sea duty, America's first line of defense, and influenced by VT-10 instructors.

Respondents who indicated a preference for shore-based assignments gave as their justifications the dislike of carrier life, enjoyment of family and marriage, flexibility, location of desired aircraft, better living conditions, more flight time, and being female.

Chi-square analysis indicates that marital status was significantly related to squadron choice ($\chi^2_1, .01 = 10.46$). As depicted in Table 8, the majority of SNFOs who were never married preferred an aircraft carrier, whereas married SNFOs preferred a shore-based fleet squadron. The strength of association between the two variables was weak (Phi coefficient = .15).

Table 8

Relationship Between Preferred Squadron and Marital Status

		Preferred Squadron		Total
		Aircraft Carrier	Shore-based	
Marital Status	Never Married	231 (61.8%)	143 (38.2%)	374 (75.7%)
	Married	54 (53.8%)	66 (46.2%)	120 (24.3%)
	Total	205 (57.7%)	209 (42.3%)	494

$$\chi^2 = 10.46$$

$$DF = 1, p < .01$$

$$\text{Phi coefficient} = .15$$

First Fleet Squadron Tour Preference. The SNFOs were asked whether they would prefer to be homeported in the continental United States or overseas for their first fleet squadron tour. Sixty percent ($n = 338$) indicated a preference for the continental United States, 35.6% ($n = 201$) indicated an overseas tour, while 4.4% had no preference.

Primary reasons for desiring to remain in the United States included enjoyment of living standards in the U.S., marriage and family, ease of transition to Navy life, desired aircraft is homeported in the United States, and travel. Additional reasons were financial stability, relationship with opposite sex, educational opportunities, convenience, the socialization offered by the pipeline, too much uncertainty overseas, fear of terrorists, and language barrier.

Those SNFOs preferring overseas tours delineated such reasons as enjoyment of travel, educational and cultural benefits, the opportunity to be stationed overseas while young, and enhancement of career promotion. Secondary reasons included the desire to be closer to where conflicts occur, economic benefits, needed a change in life, desired aircraft is stationed overseas, and to get away from the Naval Aerospace Medical Institute and the Pentagon. Additionally, a Chi-square analysis (Table 9) indicated no significant relationship between marital status and location desired for first fleet tour.

Table 9

Relationship Between Location Desired for First Fleet Tour and Marital Status

		Location Desired		
		Continental U.S.	Overseas	
Marital Status	Never Married	231 (61.8%)	143 (38.2%)	374 (75.7%)
	Married	79 (66.4%)	40 (33.6%)	119 (24.1%)
Total		310 (62.9%)	183 (37.1%)	493
χ^2 (Yate's corrected) = .64 <u>DF</u> = 1, <u>p</u> < .05				

Comparative Importance of Wings and Pipeline. Respondents were asked if getting a choice of Pipeline/Mission/Aircraft was equal in importance to getting wings. Only one out of four SNFOs answered "Yes" to this question, approximately 60% disagreed, and the remaining 15% were not sure. No significant differences related to marital status were found.

Future Career with NASA's Astronaut Program. When asked if they intended to use the NFO program as an entry path to NASA's astronaut program, 38% (n = 218) of the SNFOs indicated their desire to do so while 18% (n = 103) reported no such plan. Forty percent of the respondents were undecided on this question. The remaining respondents (3.5%) indicated no interest in NASA. A Chi-square examination of the relationship between commissioning sources and NASA interest revealed no significant dependence between the two variables.

Pipeline Assignment and Satisfaction. Following completion of basic and intermediate training, SNFOs are assigned to an advanced pipeline. Only those assigned to jet pipelines (OJN, RIO, TN) were included in this section. Table 10 presents the students' reported congruency between preferences and assignments. The congruency percentages decrease as a student advances through the pipelining process. For example, while 76.9% of the advanced students were assigned to the pipeline of their choice, only 58.5% received the aircraft they preferred.

Table 10

Reported Congruency Between Preferences and Assignments

Assignment Consistent with Preference	<u>Assignment</u>		
	Pipeline	Mission	Aircraft
Yes	76.9%	64.8%	58.8%
No	23.1%	35.2%	41.2%

Students were asked how satisfied they were when informed of their pipeline assignments. The majority of those with preference-assignment congruency were satisfied. Students with incongruent preference-assignment were distributed equally between the satisfied and dissatisfied categories, with approximately 19% reporting "indifferent." Table 11 compares the students' satisfaction at the time they were initially selected to satisfaction approximately 4 months later. Satisfaction among those with congruent preference assignment changed little with time. Those with incongruent preference assignments indicated substantial changes in their satisfaction with time. The percentage of those dissatisfied with their incongruent aircraft preference-assignment decreased from 38.7% to only 3.7% while the percentage of those satisfied increased from 41.9% to 84.4%.

Effects of selection on career plans. The students were asked how their assignment had affected their future career plans. The general responses of those with preference-assignment congruency reflected satisfaction and a positive outlook for the future. Among SNFOs with unmatched preference assignments, mixed response patterns were found. While some (14.2%) indicated unhappiness, change of marriage plans, decrease in career choice, and tentative separation, others (11.4%) thought it would be for the better. Most frequently (45.5%), students indicated 'very little effect' or 'no change' in career plans. Generally the students accepted the importance of the needs of the Navy over the desires of the individual.

Table 11
**Relationship Between Preference-Assignment
 Congruency and Satisfaction**

			Satisfaction								
			When Initially Selected								
			Pipeline			Mission			Aircraft		
			D	I	S	D	I	S	D	I	S
Preference Assignment Congruency	Yes		3.3	1.7	95.0	2.2	2.2	95.6	0.0	2.4	97.6
	No		44.4	16.7	38.9	35.7	21.4	42.9	38.7	19.4	41.9

			Satisfaction								
			4 Months After Selection								
			Pipeline			Mission			Aircraft		
			D	I	S	D	I	S	D	I	S
Preference Assignment Congruency	Yes		3.4	5.2	91.4	4.3	0.0	95.7	2.5	0.0	97.5
	No		5.5	5.5	89.0	3.7	14.8	81.5	3.1	12.5	84.4

D = Dissatisfied

I = Indifferent

S = Satisfied

RECOMMENDATIONS

1. We recommend that the Navy continue to consider the students' preferences for pipeline, mission, and aircraft assignments. Preference-assignment congruency increases the students' satisfaction, which may in turn increase motivation to perform.
2. The relationship between retention and pipeline preference-assignment congruency should be examined. Special attention should be given to what motivates those NFOs with unmatched preference-assignment to continue their Navy careers. Findings should be of assistance to the Navy in recruiting career-motivated personnel.

REFERENCES

1. Commander Training Air Wing SIX ltr dtd 16 Jul 84. Subj: Student Naval Flight Officer (SNFO) Aviation Community Preference.
2. Ambler, R. K. and Lane, N. E. (1972). An advanced pipeline assignment system for Naval Flight Officer Students. Aerospace Psychology Department Technical Memorandum TM72-20, Pensacola, FL: Naval Aerospace Medical Research Laboratory.
3. Gregoire, H. G. (1976). Analysis of reasons for Drop on Request (DOR) attributes from May to October, 1975. Aerospace Psychology Department Technical Memorandum TM76-8, Pensacola, FL: Naval Aerospace Medical Research Laboratory.
4. Bowers, N. D. (1954). Opinions of officers regarding assignment to training command. NASM-378, Pensacola, FL: Naval School of Aviation Medicine.
5. Waag, W. L. and Shannon, R. H. (1973). A factor analytic study of attritions from naval aviation training. NAMRL-1181, Pensacola, FL: Naval Aerospace Medical Research Laboratory.
6. Ambler, R. K., Rickus, G. M. and Booth, R. F. (1970). Prevention of misassignment among various aviation specialties. Aerospace Medicine, 41(1).
7. Babbie, E. (1983). The practice of social research. Belmont, CA: Wadsworth.

APPENDIX A

SNFO SELECTION PREFERENCE QUESTIONS (As provided by Training Air Wing SIX)

01. What was your commissioning source?
02. What influenced you to become a NFO?
03. What was your initial aircraft preference?
04. What or who influenced your initial preference?
05. From what aviation community was the first contact you had with a Naval Aviator?
06. Did Fleet Awareness Briefs affect your preference?
07. How did staff instructors affect your preference?
08. Did your aircraft preference change? If so, why?
09. Did you prefer an aircraft carrier or a shore based fleet squadron? Why?
10. Did you prefer to be homeported in CONUS or overseas for your first fleet squadron tour?
11. What effect did marriage have on your aircraft preference?
12. Does or did getting your choice of aircraft hold equal importance to getting your wings?
13. Do you intend to use the NFO program as an entry path to NASA's astronaut program?
14. How long have you been in the NFO program?
15. What aircraft/pipeline have you been selected for? What choice was this?
16. Were you happy with your selection, when selected?
17. Are you happy now with your pipeline?
18. How has your selection affected your future career plans?

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This report identifies those factors that relate to training and assignment preferences of student naval flight officers (SNFOs). A survey questionnaire was developed and administered to 575 SNFOs at different stages of training. Survey items included military and demographic characteristics; reasons for entering the NFO program; pipeline, mission, and aircraft preferences; and related career satisfaction.		

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20. Abstract (Continued)

Findings included (1) five general reasons students entered the NFO program: social and economic benefits, orientation toward naval career, desire to fly, self-development, and military expediency; (2) initial pipeline preference was dependent on commissioning source; (3) the most important factors contributing to pipeline, mission, and aircraft preferences were previous contact with the naval aviation community, Fleet Awareness Brief, Mini-fleet Presentation, VT-10 NFO instructors, and other military instructors; (4) marital status related significantly to overall pipeline preference and squadron choice, but was independent of location desired for first fleet tour; (5) no significant dependency existed between commissioning source and NASA interest; (6) students with incongruent preference-assignment were distributed equally between the dissatisfied and satisfied, and dissatisfaction decreased over time while satisfaction increased; and (7) students accepted the importance of the needs of the Navy over the desires of the individual.

We recommend that the Navy continues to consider the students' preference for pipeline, mission, and aircraft assignments. Preference-assignment congruency increases the students' satisfaction, which in turn reflects an increase in motivation to perform. The relationship between retention and pipeline preference-assignment congruency needs to be examined. Special attention should be given to what motivates those NFOs with unmatched preference-assignment to continue. These findings should be of assistance to the Navy in recruiting career-motivated personnel.

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